

Digital Instrumentation and Process Control



What is the Digital Instrumentation and Process Control Program?

The Digital Instrumentation and Process Control Program prepares students for entry into a broad range of computer-automated commercial, industrial, and residential jobs that include: manufacturing, alternative energy power distribution, smart homes building management systems, power generation, biotechnology, medical, and HVAC. The program focuses on hands-on application, where instrumentation knowledge is critical. HCC's A.A.S. degree can also be applied towards employment or advanced degrees.

What skills are needed to excel in this field?

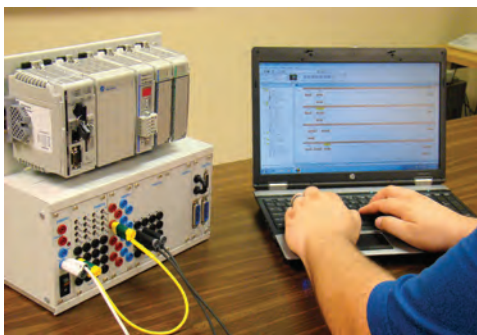
Individuals who excel in digital instrumentation possess a strong analytical aptitude, are naturally inquisitive, and enjoy hands-on activities. In addition, they have an excellent attention to detail; good communication skills; the ability to think logically and come up creative solutions; excellent problem-solving skills; strong math skills; and the ability to work well with others.

What types of jobs do technicians perform?

Instrumentation or process control technicians perform a variety of tasks on sophisticated instrumentation-based equipment and automated systems, such as:

- Assisting in specification and design
- Installation and configuration
- Maintenance and support

These technicians often work closely with engineers and managers and through additional education can enhance their skills in order to enter a career in management or engineering.



Why choose the Digital Instrumentation and Process Control Program?

Technology advancements in microprocessor-based digital instrumentation have created a demand for qualified technicians and application engineers with a well-rounded skill-set. Automation of processes using complicated instrumentation has become the norm in industries around the world and in equipment used everywhere. The need for skilled workers to design, understand, operate, maintain, and troubleshoot this equipment has increased as a result, bringing increased opportunities for rewarding careers.

What do digital instrumentation and process control students learn?

Students in the Digital Instrumentation and Process Control Program learn all the necessary skills to perform in today's technical environment. These include AC and DC electronics, measurement of pressure, level, flow, temperature, proportional control concepts, Integral control concepts, PID controllers, data collection and reporting, system maintenance, PLC (Programmable Logic Control), SCADA (Supervisory Control And Data Acquisition), embedded PC machine controls, automation and automation system networking.

PROGRAM OPTIONS

- A.A.S. Degree, Digital Instrumentation and Process Control

CAREER OUTLOOK

MEDIAN SALARY

\$60K

for electrical and electronics careers

EMPLOYMENT



14,100 jobs in U.S.
3% growth over next 10 years

A broad range of careers are applicable to this program, including Electrical and Electronic engineering technicians, Electro-mechanical Technicians, and Industrial engineering technicians, which averages a median salary of \$60K.

(source: www.bls.gov/ooh)

What makes HCC's program special?

As a state-wide designated program, out-of-county and out-of-state students may be eligible for in-county tuition. HCC's continued investment in facilities and state-of-the-art teaching tools also offers students a competitive edge as they enter the workforce or continue their education. Program instructors have critical industry experience to provide the applications knowledge to make this program instantly useful.

In addition, HCC's A.A.S. degree trains students for many of the tasks traditionally performed by engineers with a four-year degree. As a result, this program is an excellent stepping stone for students interested in completing an engineering degree.

What other industries does the program support?

HCC's program supports design, biotechnology, the medical field, municipal waste-water treatment systems, electric vehicles, smart building technology, and future smart grid applications.

Does HCC offer a separate automation program?

Yes, HCC now offers a new automation certificate program that provides students with credentials for a career in the growing area of automation, an area that is rapidly becoming standard in manufacturing, commercial controls, and even residential buildings.

A.A.S. Degree

Digital Instrumentation and Process Control

The Digital Instrumentation and Process Control Program prepares students for a career in the growing area of microprocessor based instrument technology and integrated manufacturing, commercial and other control systems. Built upon a solid foundation of technical skills in electricity and electronics, students will learn the function and features of a variety of digital instrumentation components and systems used in commercial as well as industrial settings. Students will learn PLCs, SCADA (Supervisory Control and Data Acquisition), PAC, and microcomputer control systems and how to implement and service these systems. The methods of instruction include hands-on training as well as classroom instruction using equipment and software typically found in various industries.

General Education Requirements	18-19 credits
Arts/Humanities	
Select from approved General Education course list	3
Behavioral/Social Sciences	
Select from approved General Education course list	3
Biological/ Physical Science	
PHY 112 Applied Physics.....	3
OR	
PHY 201 General Physics I.....	(4)
Diversity	
Select from approved General Education course list	3
English	
Select from the approved English General Education course list.....	3
<i>(ENG 112 is recommended)</i>	
Mathematics	
MAT 114 Introduction to Applied Algebra	3
OR	
MAT 160 Precalculus I	(3)
Program Requirements	36 credits
ELE 101 Industrial Networking.....	3
ELE 102 Analog Electronics.....	3
ELE 105 Microprocessors & Microcontrollers ..	3
ELE 106 Digital Electronics	3
ELE 110 Fundamentals of Electricity	4
ELE 113 Instrumentation and Process Control I	3
ELE 203 PLC Applications	3
ELE 204 Electrical Machines.....	3
ELE 205 Process Technology Equipment and Systems	2
ELE 213 Instrumentation and Process Control II	3
ELE 235 Advanced Concepts and Applications of Instrumentation and Controls.....	3
INT 102 Introduction to PLCs.....	3
 Free Electives	
5-6 credits	
Select from the following:	
ADM 201 Lean Manufacturing and Quality Assurance.....	2
ELE 140 Introduction to Robotics	3
ELE 269 Internship	1-3
INT 120 Introduction to OSHA.....	1
Degree Requirements	60



Contact Information:

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Recommended Professional Organizations:

International Society of Automation (ISA)
www.isa.org

www.hagerstowncc.edu/TCS

